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AGRICULTURAL EDUCATION

STATE NORMAL SCHOOLS

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It is the business of state normal schools not only to train teachers but also, as far as conditions permit, to find out by experiment in practice schools, what to teach and how to teach it. When both aspects of the work of these schools are considered, the important relation which they bear to agricultural education, particularly in elementary schools, becomes apparent. The problem of the normal school in this matter is twofold: (*a*) to meet the rapidly growing demand for teachers who are able to give satisfactory instruction in elementary agriculture, and (*b*) to reduce the subject to a proper pedagogical basis, in other words to determine what phases of this great subject may be undertaken in the elementary schools under average school conditions both from the standpoint of the child and of the teacher.

The following is a brief summary of the efforts of the state normal schools to find a solution of this twofold problem. The data have been gathered from one hundred and thirty-seven of the one hundred and forty-five schools now actively engaged in training teachers.[1]

When the diverse social, educational, and industrial interests of the country as a whole are considered it is to be expected that these differences will be reflected in the types of instruction given in the various normal schools. To these differences brought about by conditions more or less local are to be added those due to tradition. The older schools are usually less elastic and adaptable than the newer ones. Bailey regards the latter fact as a very serious obstacle in the way of a general introduction of agriculture into these schools. He says, "One cannot look to all the existing normal schools in the older states, or even to any considerable part of them, for the training of teachers for this kind of work" (28).[2] This statement must be qualified for there are many exceptions. For example, the Johnson State Normal School of Vermont has been offering courses in agriculture for over eight years, while the one at Laramie, Wyoming, recently established, does not give courses in agriculture but prepares its graduates to teach in cities.

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[1] Just now the nine state normal schools of Oregon are closed, owing to lack of financial support from the state.

The number of graduates of state normal schools that teach in agricultural communities varies exceedingly not only in different states but among the schools of a single state. Reports from seventy-six show that twenty-eight have from 60 to 100 per cent. of their graduates going into schools of rural communities; twenty-seven have from 20 to 50 per cent.; and twenty-one have from 1 to 10 per cent. Of the twenty-eight having from 60 to 100 per cent. of their graduates teaching in rural communities, twenty are offering instruction in agriculture and fifteen require it; of those having from 20 to 50 per cent., twenty offer instruction in agriculture and nine require it; of those having from 1 to 10 per cent., eleven offer agriculture and three require it. If this proportion should apply to all the schools it would seem to indicate that the number of graduates of normal schools going into agricultural communities is quite large, perhaps larger than generally supposed. It indicates also a tendency of the schools to adapt their work, at least to the extent of introducing agriculture, to the needs of the communities where their graduates teach. This estimate is only approximate and only inferences may be drawn from it. It does not take into consideration the large number of students who take a portion of the course and who for the most part go into the country to teach. One normal-school president says: "There are very few of our graduates who teach in rural schools, but there are multitudes of our undergraduates who do so." This statement suggests another phase of the problem of normal-school instruction which has received little or no attention, viz., what recognition in the course of study or character of instruction should be given to the fact that so many who attend the normal school for part of the course drop out and become teachers in rural schools? For example, in the school just referred to, the instruction is evidently adjusted to meet the needs of students who expect to teach in city schools. No agriculture is taught although "multitudes of the undergraduates" become teachers in rural schools, and in the state itself agriculture is the chief industry.

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[2] The references are to bibliographies of previous articles of this series and to bibliography at end of this article.

The development of agricultural instruction in state normal schools has on the whole kept pace with the growth of the general interest in the subject. It is hard to say just when this subject was first taken up. Probably the first institution to begin this work under the name of agriculture was the Rock Hill State Normal School of South Carolina, which offered courses in agriculture as early as 1895. The Johnson State Normal School of Vermont offered its first course in agriculture in 1901, and about this time the subject was introduced in some of the state normal schools of the Middle West (45).

In 1906 a report on "Preparation of Teachers to Give Instruction in Elementary Agriculture" was prepared for the Joint Board of the California State Normal Schools trustees (46). This report showed that the normal schools of Minnesota, North Dakota, Nebraska, Missouri, and South Carolina were attempting to prepare teachers to give instruction in elementary agriculture; that some attention was being given to the subject in the normal schools of Illinois, Utah, and Oklahoma; that nothing was being done to furnish such training in the schools of Iowa, Kansas, Michigan, Ohio, Pennsylvania, Alabama, North Carolina, or New York, but that several of these schools were, however, getting ready to undertake the work as soon as possible.

In a study of ninety-one state normal schools reported to the National Education Association in 1907, it was shown that seventy-five believed in an instruction in agriculture, and were either giving it in some form or desired to do so. Sixty-one of this number were either offering courses or had made plans for such courses for the following year. Seven of these were giving only a little agriculture in connection with other science courses. Eight were doing still more in connection with school gardens and were planning to extend the work. The remaining forty-six were giving definite courses in agriculture (47).

During the present school year, of one hundred and thirty-seven state normal schools, eighty-seven are now giving some instruction in agriculture. In fifty-two of those offering courses, twenty-two are elective and thirty required. Of those not giving instruction in agriculture, thirty-seven give it incidentally in connection with botany, nature-study, or some other course in science, and nearly all those giving courses in agriculture also give some attention to the subject in other science work, particularly in botany and nature-study.

It will be seen from the above that normal schools are rapidly introducing agriculture. The number of schools offering such courses has increased from about 20 per cent. in 1906 to more than 50 per cent. in 1909. Indeed, the demand for well-qualified instructors in agriculture for normal schools exceeds the supply. One normal-school president says that he tried for over one year to secure a competent instructor. Davenport says: "The call is sharp from the normal schools of the Middle West which have this year (1909) taken some of the best trained and most promising teachers of this class" (48, p. 144). The call is not alone from the Middle West but the East as well. During the present school year one of the normal schools of the New England states secured a teacher who, at the time of his appointment, was professor of agricultural education in an agricultural college of the Middle West.

Letters from presidents and others connected with normal schools not now offering agricultural instruction indicate that in many of these schools plans are under way to introduce the subject as soon as possible. Included in this number are the normal schools of New York and Pennsylvania, none of which now offers such instruction except incidentally with nature-study and other subjects.

The character of the work in agriculture varies much in different schools. But there is one feature of the instruction that is common to all, viz., as evidence of the newness of the subject and of the fact that it is in an experimental stage. In some schools the work in agriculture is only in name, much better instruction being given in other schools in courses in nature-study.

The time given in the course of study varies from ten weeks to two full years, the average being less than one year. One interesting reaction following the demands for agricultural instruction is to be found in the readjustment in science courses, especially in the biological sciences. The title agricultural botany and agricultural zoölogy frequently occurs in courses of study. One fails to find in some of these, however, justification for the new titles, for the instruction remains much the same, with emphasis on morphology. The attitude of certain teachers of biology toward their subject is well illustrated by the following extract of a letter received from a member of the faculty of a large state normal school. "I obtained over one dozen kinds of water animals one day from a pool when the science (biology) teacher said he saw none in it. He was sending to New York City for crayfish when a brook near the building was full of them. The boys (in training school) had made nets and would have been glad to have caught the animals for him." Perhaps the influence of such a teacher was partly responsible for the ignorance of a practice teacher (a senior) who stood in a bed of marigolds and asked if there were any marigolds in the garden. The introduction of agriculture will no doubt have much to do in changing this attitude.

> It will in the end exert a profound influence upon the teaching of general science. There is no manner of doubt that the masses of people are best benefited by the teaching of science in its applied form. . . . . Agriculture is evidently to be the pioneer in this business of the adaptation of science to the common affairs of life in the schools that are attended by the masses, and if this is true its incidental service may be even greater than its direct. In the meantime it is vastly significant that the schools where teachers are made have at last commenced to study real life in one of its most concrete forms (48, pp. 45–46).

Normal schools have so far been too much occupied in providing for instruction in agriculture to give much attention to the pedagogical problems of the subject. These problems concern (*a*) the organization of courses in the normal school itself, and (*b*) methods of teaching the subject in the public schools. Naturally, the former has been the first to receive attention. The organization of work in agriculture has been in two directions, one in the science work already referred to, and the other in the purely agricultural courses recently introduced.

Special efforts of adjustment have affected nature-study more than other science studies. Many believe that as far as the elementary schools are concerned agriculture should have the nature-study aspect, or as some prefer to say, nature-study should have an agricultural trend; that since nature-study has to do with material drawn from the child's immediate environment, and since a large part of this environment is more or less agricultural (consisting of animals and plants under control of man) a good course in nature-study forms an adequate preparation for a teacher to give such agricultural instruction as will meet the needs of rural schools, and at the same time enables a teacher to make use of school gardening and other practical or economic phases of the subject in city schools (49).

The particular direction in which nature-study has been most modified in its readjustment has been in the school garden (50). It has been found that the school garden may serve as a very effectual means of unifying most all nature-study work. Children are not only able to "grow things" in gardens, but in doing this work successfully have had to solve many of the problems that are fundamental to agriculture. The character of the soil, the conservation of water by cultivation, the protection of plants from insect and other enemies, and many other factors of successful plant growing are encountered. Many normal schools have regarded this readjustment of nature-study and other science work as sufficient to meet the demands for agricultural instruction in the training of elementary teachers, and are working with this end in view. Some of the normal schools of California, Illinois, Massachusetts, New Jersey, and other states, and many of those schools now offering courses in agriculture, have made substantial progress in the readjustment of science work.

Instruction in agriculture as a separate subject in normal schools is now in an experimental stage. Yet certain work and methods seem to have proved successful. The first publication of work adapted to normal schools was in the form of a textbook based on teaching experience in the Kirksville, Mo., State Normal School (51). Recently a very concrete treatment of the problem has appeared as a government publication. It is an account of what is actually being done and how it is done in a typical normal school. The writer says in his introduction,

> The aim of the normal school is to prepare young men and women to teach in the elementary schools of the state. The young people who attend come from farms or smaller towns, and when they go out to teach they are called upon to give instruction in what is known as elementary agriculture. To meet this demand, a department of agriculture was established four years ago. The course at first extended through one term's work but has been lengthened until practically two full years are now devoted to agricultural instruction. The work has attracted many young people, and the success with which they have subsequently instructed others along these lines indicate that the instruction has been effective. Not all the problems in teaching agriculture have been solved but it may justly be claimed that a few of the more difficult of them have been solved (52).

Other similar publications of successful practice which has been tested by the work of students when they become teachers will contribute much toward the pedagogical efficiency of the subject.

From the standpoint of methods of teaching the subject in the public school, little has been done. A very promising beginning of the study of this question was made at the Peru Nebraska State Normal School in February, 1909, when the Normal Agricultural Society was organized. The purpose of this society is to aid teachers in "handling the new subject of agriculture in public schools of the state." Those interested in its organization have expressed the hope that "it will become a pedagogical laboratory for testing and discovering methods to improve and extend the teaching of agriculture throughout the schools of Nebraska." The director is the head of the department of agriculture in the Peru Normal School and conducts for the society a column in the *Nebraska Farmer* which is to be the official publication of the society (53).

An interesting experiment limited to one phase of agriculture is now being conducted at the Western Illinois State Normal

School at Macomb in co-operation with the Illinois State Agricultural Experiment Station. A soil experiment field of two and one-half acres has been provided by the normal school. The school

> as its share of the responsibility, takes full charge of the field operations implied in the plans. Such co-operation provides for both scientific and educative values in the work and it is proposed to make the results as far reaching as possible. Not alone to teachers and prospective teachers will it be valuable but as well to persons now engaged in agricultural practice (54).

A few helps to teachers have been worked out in normal schools and published, for example, from Cape Girardeau, Mo. (55), and Chico, Cal. (56). They consist of discussion of agricultural subjects suitable for public schools, and methods of instruction.

There is one large class of normal-school students already mentioned that is not adequately provided for. This class is made up of students who wish to teach in rural schools and who can spend only a year or part of a year in preparation, and is the largest in states where emphasis is placed on examination for certification. These students attend primarily to prepare for examinations.

It has been the custom in most schools to provide for these students by offering short review courses. Often instruction in elementary agriculture and sometimes in manual training forms a part of this work, and is really the only part that takes into consideration the life of the community in which these students are to teach. These short courses are generally regarded by normal-school teachers as unsatisfactory, both on account of the shortness of the time given and the irregular preparation of the students themselves. Although the situation is recognized as a difficult one very little has been done to improve it. There are several schools, however, that have undertaken to give their students of this class some real preparation for this work as teachers. Some have arranged with local public-school authorities for a one-room rural school to be used as an observation or practice school. Others have built or have control of a one-room schoolhouse and have endeavored to make it a model of its kind so as to show concretely the possibilities of a rural school. For example, the Kirksville (Mo.) State Normal School has a well-appointed single-room schoolhouse. It has been

> designed and constructed to show that a rural school anywhere can have all the conveniences and comforts offered in any city building. The children are transported in covered vehicles to and from school. It is a model school so far at it can possibly be made such. It is to exemplify the best things which a school board and a good teacher with up-to-date facilities can do in and for a rural school.

Special provision is made for instruction in manual training, elementary agriculture, and home economics.[3]

Two somewhat similar plans for rural education should be mentioned in this connection. Both of these have the larger possibilities of teaching in rural communities in view. One is a course of two years called "rural arts" given by the Harrisburg (Va.) Normal and Industrial School for Women. The course requires high-school graduation for admission. The object is to

> give its students a training of mind, heart, and hand which will fit them for efficient service in rural schools, and for intelligent and appreciative participation in the life of rural communities. It will not attempt to train farmers; it cannot be expected to turn out agricultural experts. Its work will be limited to those phases of farm life in which women usually, or frequently, or may properly participate, and to that portion of agricultural instruction which may properly be given by female teachers in elementary and high schools.

The course includes besides some of the regular normal courses, horticulture, elementary agriculture, rural sociology, poultry raising and bee culture, dairying, forestry and floriculture, and theory and practice in rural arts.[4] The other is a course of two years known as "rural industrial education" given by the Ohio State Normal College of Miami University. Its requirements for admission are the same as for other college courses. This course is expected to meet the needs of township superintendents, principals and science teachers of high schools in rural communities, and to enable these teachers to adapt the work of their high schools more nearly to the life of the school communities. The course includes education, school administration, rural sociology, agriculture (two years), forestry, botany, manual training, rural education, methods of rural school organization, physical geography, trigonometry and surveying, and physics of farm machinery. In planning this course, which is at present a tentative one, the influence of the high school of an agricultural community on the elementary schools was carefully considered. Most of the teachers in the elementary schools of these communities are graduates of these high schools. They seldom receive further training. Therefore, with a high school organized to meet the needs of the community, its influence should thus extend to the elementary schools through its graduates who become teachers.[5]

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[3] *Bulletin First District Normal School, Kirksville, Mo.*, IX, No. 1 (1909), 9–16.

[4] *Bulletin State Normal and Industrial School, Harrisburg, Va.*, I, No. 1 (1909), 88–92.

Any account of the work of the state normal schools in agricultural education would be incomplete without some special reference to the teachers themselves who are engaged in this work. Many are doing their work under considerable disadvantage. This applies not only to the fact that agriculture is a new normal-school subject to be adapted to new conditions but also to the fact that it has been added as an additional subject to a teacher's already overcrowded programme. One teacher writes that he is offering agriculture this year for the first time, but is expected also to teach physics, chemistry, botany, zoölogy, physiology, geology, and physical geography. Several teachers have bought small farms primarily in order that their students might have the advantage of actual field experimentation.

With the earnest body of teachers now beginning to take up the work and with the progress already made it seems likely that the demands for agricultural instruction in the training of teachers in state normal schools will soon be met. The real test of the value of this training is in the work of the teacher who goes out from the schools and it is now too early to pass judgment.

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[5] *Bulletin, Miami University,* Series 8 (1910).

BIBLIOGRAPHY

The facts of the text have been obtained chiefly from personal letters, normal-school catalogues, and reports of presidents of normal schools to state officers of education. Only those publications referred to by number in the text are included in the following list:

45. *Outline of the Courses in Science.* Madison, Wis.: Board of Regents of State Normal Schools (1901), pp. 32.

Each of the subjects of instruction in the state normal schools is briefly outlined. About seven pages are devoted to agriculture and include purpose of subject, scope (soil, plant and crops, animals and stock), and plan.

46. "Shall Teachers Be Prepared to Give Instruction in Elementary Agriculture?" B. M. DAVIS. *The Western Journal of Education,* May, 1906, pp. 5-15.

This is a report submitted to the Joint Board of the California State Normal School Trustees at its annual meeting held at Chico, Cal., April 15, 1906. It discusses the organization of agricultural education in the United States, agriculture in the elementary schools, work in Canada, N. E. A. report on industrial education in schools for rural communities, work of the normal schools, the problem as concerns the California normal schools including a tabulation of answers to questionnaire sent to all the county superintendents of the state, and a discussion of the work of the normal school.

47. "What Has Been Done by Normal Schools and Agricultural Colleges for Popular Education in Agriculture." E. E. BALCOMB. *Proceedings of the National Education Association for 1907,* pp. 1069-75.

This report is a summary to answers to letters to the president of each agricultural college, to each state normal school, and to certain other schools of the United States.

48. *Education for Efficiency.* E. DAVENPORT. Boston: D. C. Heath & Co., (1909), pp. 184.

Its subtitle is "A discussion of certain phases of the problem of universal education with special reference to academic ideals and methods." The book is in two parts: the first, a discussion from general educational standpoint including education for efficiency, industrial education with special reference to high school, as a phase of the problem of universal education, educative value of labor, culture aim and unity in education; the second, an illustration of the principles discussed in first part as applied to agriculture—including agriculture in the high school, in the elementary school, in the normal school, and the development of agriculture—what it is and what it means.

49. "The Organic Field of Nature-Study." GEORGE H. HUDSON. *Nature-Study Review,* Vol. III, No. 5 (1907), pp. 129-35.

A scheme is given outlining the subject in considerable detail in two parts: one, the physical or practical, the other, the psychical. Both are amplified by a discussion which follows.

50. "School Gardens for California Schools." B. M. DAVIS. Chico, Cal.: *State Normal School Bulletin No. 1* (1905), pp. 79.

This is a manual for teachers. It discusses the history of school gardens and their educational importance, the plant and its relations, plant

propagation, instruction including aim and scope, practical work, correlative subjects, adaptation to school conditions, etc. The annotated bibliography of nearly three hundred titles is a summary of the literature of the subject up to 1905.

51. *Agriculture through the Laboratory and School Garden.* C. R. JACKSON AND L. S. DAUGHERTY. New York: The Orange Judd Co. (1905), pp. 419.

"The preparation of this book was undertaken, primarily, that the classes in agriculture in the State Normal School of Kirksville, Mo., might have in one book the directions for all the laboratory experiments and exercises, and such information as would enable them to understand the results of these experiments."

52. "Normal School Instruction in Agriculture." N. J. ABBEY. *U. S. Department of Agriculture, Office of Experiment Stations, Circular 90* (1909), pp. 31.

This circular "sets forth in a brief way the manner in which agriculture is taught at the Maysville State Normal School, No. Dakota." It contains a discussion of why normal schools should train teachers in agriculture and the place of agriculture in the normal school curriculum. Most of the circular is a detailed account of the work, including textbook instruction, class exercises, laboratory instruction, typical laboratory exercises, apparatus, the school garden, the model school, visiting a rural school, field excursions, methods, correlation, and difficulties.

53. "Normal Agricultural Society." CHARLES R. WEEKS. Peru, Neb.: *State Normal School, Special Circular* (1909), p. 1.

This circular gives history, purposes, and plans of this organization.

54. "Western Illinois State Normal Experiment Field." J. T. JOHNSON. Macomb, Ill.: *State Normal School, Circular No. 1* (1907), pp. 4.

The circular contains statement of purpose, location, and plans of conducting the soil experiment field.

55. "A Correlated Course of Study in Agriculture, Geography, and Physiology for Rural Schools." E. A. COCKEFAIR. Cape Girardeau, Mo.: *State Normal School, Special Bulletin* (1909), pp. 63.

It contains daily programme of recitation; general outline including such subjects as seed, corn judging, corn selection, corn breeding, how corn grows, the soil, crops, foods, live stock judging, markets, dairying, gardening, fruit growing, forestry, cooking, sewing, home decoration; elaboration of outline.

56. "Course in Nature-Study and Elementary Agriculture." RILEY O. JOHNSON. Chico, Cal.: *State Normal School, Special Circular* (1908), pp. 8.

The work outlined in this circular is designed for the ungraded schools of California. There are three parts: (1) an outline of the work, (2) a specimen lessons, and (3) a list of references.